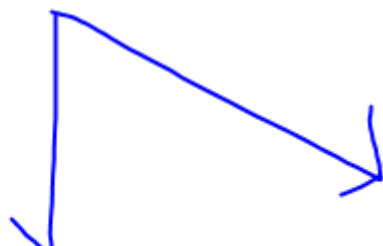


$$\textcircled{a} \quad \lim_{x \rightarrow \infty} \frac{1 - \cos x}{x^2} = 0$$


$$\frac{1 - (1)}{x^2}$$
$$\frac{1 - (-1)}{x^2}$$


$$\frac{0}{x^2}$$
$$\sim \frac{1}{x^2}$$

(4)

$$a. \lim_{x \rightarrow \infty} f(x) = \infty$$

$$f(x) = \frac{3x^3 - x + 1}{x + 3}$$

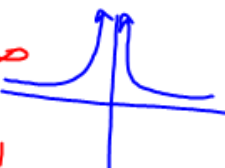
$$b. \lim_{x \rightarrow -\infty} f(x) = \infty$$

$$\text{end function} = 3x^2$$


c. no asymptote

Sect. 2.2 Review Points:

- Horizontal Asymptotes - 3 rules from Pre-Calc.
- Vertical Asymptotes - zeros of $D(x)$
- Properties of Limits as x approaches infinity

• $\lim_{x \rightarrow 0} \frac{1}{x^2} = \infty$ 
not real

$\lim_{x \rightarrow 0} \frac{1}{x} = \emptyset$


 $\lim_{x \rightarrow 0^+} \frac{1}{x} = \infty$
 $\lim_{x \rightarrow 0^-} \frac{1}{x} = -\infty$

- End Behavior
- "Seeing Limits" for x approaches infinity by looking at x approaches zero for $f(1/x)$. Replace x w/ $\frac{1}{x}$

$$f(x) = x$$

$$\lim_{x \rightarrow \infty} x = \infty$$

$$f(x) = \frac{1}{x}$$

$$\lim_{x \rightarrow 0} \frac{1}{x} =$$

$$x \cdot 10 = 10x$$

$$\frac{x}{0.1} = 10x$$

Dayton Power and Light, Inc., has a power plant on the Miami River where the river is 800 ft wide. To lay a new cable from the plant to a location in the city 2 mi downstream on the opposite side costs \$180 per foot across the river and \$100 per foot along the land.

- Ⓐ Cost straight across hyp. water
- Ⓑ Cost straight across river water
- Ⓒ Min. & max cost
- Ⓓ Cost eq.
- Ⓔ Shortest amount cable

p. 71-75

#1-5, 1-10

p. 80 1-3, 5

p. 81 #2

HW

- pick 8 problems total
2.1 + 2.2
to work
- Quick Quiz p. 77
- write up of #56 in 1.2